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Terms	Documents
L15 same L13	4

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L17

Search History

DATE: Friday, March 30, 2007

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side by side			
DB=USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=OR			
<u>L17</u>	L15 same l13	4	<u>L17</u>
<u>L16</u>	L15 and l14	1	<u>L16</u>
<u>L15</u>	write adj1 once adj1 (disc or disk)	444	<u>L15</u>
<u>L14</u>	L13 same dma	23	<u>L14</u>
<u>L13</u>	repeatedly adj1 record\$	1424	<u>L13</u>
<u>L12</u>	updatable near3 dma	1	<u>L12</u>
DB=USPT,PGPB; PLUR=YES; OP=OR			
<u>L11</u>	('5940853' '6341109' '6667939' '6842580' '6883111' '20020136537' '20040062160')![pn]	7	<u>L11</u>
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<u>L9</u>	L6 same temporary	17	<u>L9</u>
<u>L8</u>	L6 same l5	8	<u>L8</u>
<u>L7</u>	L6 and l5	30	<u>L7</u>
<u>L6</u>	L1 same l2 same record\$	65	<u>L6</u>

<u>L5</u>	L4 same l3 same l2	153	<u>L5</u>
<u>L4</u>	lead-out adj1 area	1576	<u>L4</u>
<u>L3</u>	lead-in adj1 area	2402	<u>L3</u>
<u>L2</u>	(defect adj1 management adj1 information) or dma	35372	<u>L2</u>
<u>L1</u>	defect adj1 information	2328	<u>L1</u>

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L7: Entry 2 of 30

File: USPT

Nov 8, 2005

DOCUMENT-IDENTIFIER: US 6963523 B1

TITLE: Optical recording medium and method for formatting the same with improved compatability and consistency

Brief Summary Text (7):

FIG. 1 shows a defect management area (DMA) in a lead-in area and a lead-out area of the optical disc to manage a defect area. Particularly, the data area is divided into a plurality of zones for the defect area management, where each zone is further divided into a user area and a spare area. The user area is where data is actually written and the spare area is used when a defect occurs in the user area.

Brief Summary Text (8):

There are four DMAs in one disc, e.g. DVD-RAM, two of which exist in the lead-in area and two exist in the lead-out area. Because managing defective areas is important, the same contents are repeatedly recorded in all four DMAs to protect the data. Each DMA comprises two blocks of 32 sectors, where one block comprises 16 sectors. The first block of the DMA, called a DDS/PDL block, includes a disc definition structure (DDS) and a primary defect list (PDL). The second block of the DMA, called an SDL block, includes a secondary defect list (SDL). The PDL corresponds to a primary defect data storage and the SDL corresponds to a secondary defect data storage.

CLAIMS:

16. A method of formatting an optical recording medium, said recording medium including a primary spare area, a supplementary spare area for replacing a defective unit with available replacement unit, and a defect management area including a defect management information for managing a defective area, the defect management information including a secondary information indicating a location of a defective unit and a location of a replacement unit, the method comprising: receiving an instruction to format the recording medium; resetting a location information of the supplementary spare area in response to the instruction to indicate at least that the supplementary spare area is not assigned, wherein the supplementary spare area has a variable size and a start position of the supplementary spare area is varied and is moved toward an inner radius of the recording medium, depending upon the variance of the size of the supplementary spare area, while an end position of the supplementary spare area is fixed and is located close to a lead-out area of the recording medium; and transferring secondary defect information with a new PDL (primary defect list) of the defect management information according to the instruction at least to use the supplementary spare area as a user data area after formatting.

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Generate Collection

Print

L14: Entry 1 of 23

File: USPT

Mar 6, 2007

DOCUMENT-IDENTIFIER: US 7188271 B2

TITLE: Write-once optical disc, and method and apparatus for recording management information on write-once optical disc

PRIOR-PUBLICATION:

DOC-ID

DATE

US 20040193947 A1

September 30, 2004

Description Paragraph (21):

It should be noted that in a general BD-RE, since data can be repeatedly recorded on and erased from a DMA (although the size of the DMA is limited), a DMA of large size is not required. However, in a BD-WO according to the present invention, since data cannot be repeatedly recorded on and erased from the DMA, a DMA of large size is required for defect management.

Description Paragraph (46):

Similar to the DMA structure of the BD-WO, the BD-RE includes as shown in FIG. 6A, one DMA composed of a DMA part (Clusters 1 32) from the first recording layer and a DMA part (Clusters 33 64) from the second recording layer, which are accessed according to the tracking direction indicated with the arrow. As shown in FIG. 6B, the same DDS information is repeatedly recorded on the Clusters 1.about.4 of the DMA, and the DFL information is repeatedly recorded on the Clusters 9.about.64 of the DMA. However, in the BD-RE, the Clusters 5.about.8 are not used at all for defect management.

Description Paragraph (53):

In one embodiment, the latest disc usage management information is recorded each on the front part of a first DMA in the lead-in area and/or on the front/rear part of a DMA in the lead-out area (depending on whether the disc is a single layer or multiple layer). This allows the disc usage management information to be accessed quickly at the initial loading time of the disc. Further, the data reliability and data preservation can be assured by repetitive recording of same information in different parts of the disc. For instance, if the Clusters 1 32 of the DMA shown in FIG. 7 is assumed to correspond to the DMA 2a shown in FIG. 5, then the information recorded in the Clusters 1 32 shown in FIG. 7 is repeatedly recorded in each of the other DMAs 1a, 3a and 4a of the first recording layer. Similarly, if the Clusters 33 64 of the DMA shown in FIG. 7 is assumed to correspond to the DMA 2b shown in FIG. 5, then the information recorded in the Clusters 33 64 shown FIG. 7 is repeatedly recorded in each of the other DMAs 1b, 3b and 4b of the second recording layer.

Description Paragraph (55):

FIG. 9 illustrates a structure of a DMA and a TDMA of a dual layer BD-WO and a method of transferring data from the TDMA to the DMA according to an embodiment of the present invention. This example is identical to the example of FIG. 7, except that in this example, each of the (D0&T0) and (D1&T1) for the first and second recording layers L0 and L1 is alternatively and repeatedly recorded in the DDS section of the DMA by the unit of, e.g., one cluster.

Description Paragraph (63):

According to the present invention, in a single layer BD-WO case, the latest T0 and D0 for the single recording layer are repeatedly recorded in the DDS section of the DMA. Similarly, the latest TDFL information is repeatedly recorded as needed in the DFL section of the DMA.



US 20060242482A1

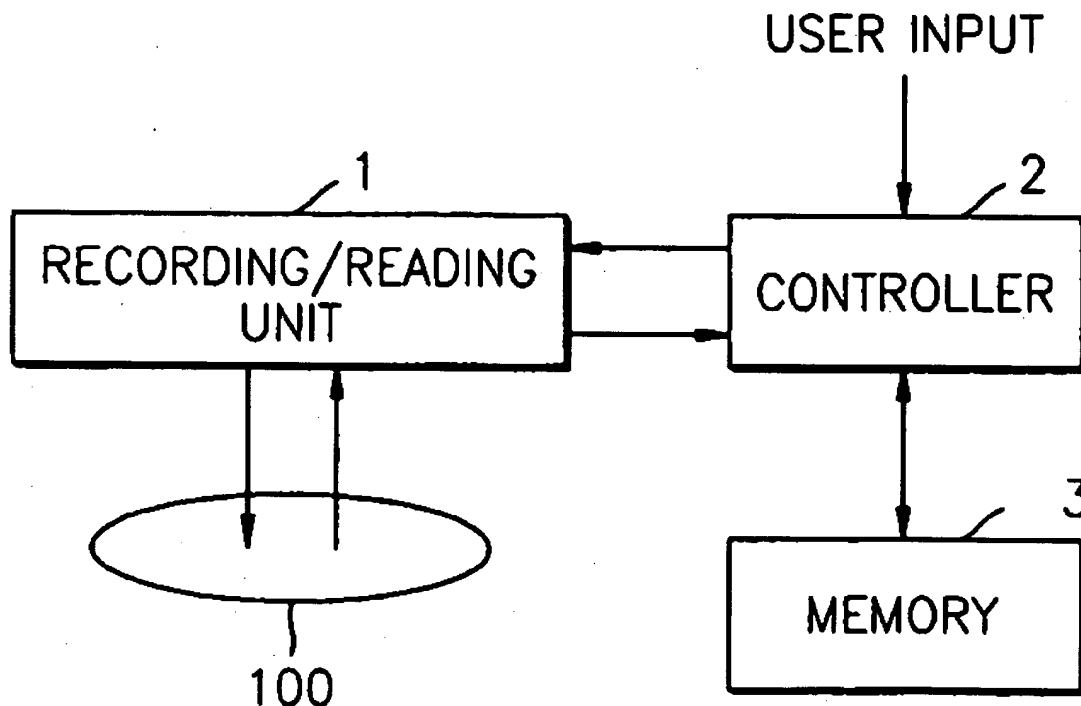
(19) **United States**(12) **Patent Application Publication**
Hwang et al.(10) **Pub. No.: US 2006/0242482 A1**(43) **Pub. Date: Oct. 26, 2006**(54) **METHOD OF AND APPARATUS FOR
MANAGING DISC DEFECTS USING
TEMPORARY DEFECT MANAGEMENT
INFORMATION (TDFL) AND TEMPORARY
DEFECT MANAGEMENT INFORMATION
(TDDS), AND DISC HAVING THE TDFL AND
TDDS**(75) **Inventors: Sung-hee Hwang, Seoul (KR);
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Kyung-geun Lee, Gyeonggi-do (KR)****Correspondence Address:
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WASHINGTON, DC 20005 (US)**(73) **Assignee: Samsung Electronics Co., Ltd., Suwon-
si (KR)**(21) **Appl. No.: 11/430,883**(22) **Filed: May 10, 2006****Related U.S. Application Data**(63) Continuation of application No. 10/670,363, filed on
Sep. 26, 2003.(30) **Foreign Application Priority Data**

Oct. 18, 2002 (KR)..... 2002-63850

Dec. 13, 2002 (KR)..... 2002-79755

Publication Classification(51) **Int. Cl.**
GIIC 29/00 (2006.01)(52) **U.S. Cl. 714/710**(57) **ABSTRACT**

A disc having an updatable defect management area used by an apparatus for managing defects on the disc, the disc including a user data area which includes user data, a spare area that is a substitute area for a defect existing in the user data area, and an area in which are recorded an address of data that is last recorded in the user data area and an address of a replacement data recorded in the spare area. Accordingly, the disc defect management method and apparatus are applicable to a recordable disc such as a write-once disc while effectively using a defect management area of the disc.



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L7: Entry 3 of 30

File: USPT

Jul 26, 2005

DOCUMENT-IDENTIFIER: US 6922802 B2

TITLE: Method for creating defect management information in an recording medium, and apparatus and medium based on said method

Brief Summary Text (9):

Defect management information, or physical addresses of defective sectors within the data area are stored in DMA (defective management area), which is provided in four places, two in lead-in area and the other two in lead-out area, as shown in FIG. 1, to protect against the defects which may arise in the four DMA themselves.

Brief Summary Text (32):

The apparatus for creating defect management information according to the present invention further comprises a means for obtaining addresses of the area in which data to be erased is recorded; a means for reviewing the storing means keeping the location information, or addresses of audio/video data's defective areas and determining whether or not there is any defective area, address of which is matched with the obtained addresses; and a means for moving the matched addresses between the areas for defect information.

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L8: Entry 5 of 8

File: EPAB

Feb 19, 2004

PUB-NO: WO2004015708A1

DOCUMENT-IDENTIFIER: WO 2004015708 A1

TITLE: DISC WITH TEMPORARY DISC DEFINITION STRUCTURE (TDDS) AND TEMPORARY DEFECT LIST (TDFL), AND METHOD OF AND APPARATUS FOR MANAGING DEFECT IN THE SAME

PUBN-DATE: February 19, 2004

INVENTOR-INFORMATION:

NAME

COUNTRY

KO, JUNG-WAN

LEE, KYUNG-GEUN

ASSIGNEE-INFORMATION:

NAME

COUNTRY

SAMSUNG ELECTRONICS CO LTD

KR

APPL-NO: KR00301610

APPL-DATE: August 11, 2003

PRIORITY-DATA: KR2002047513A (August 12, 2002), KR2002047514A (August 12, 2002)

INT-CL (IPC): G11B 20/18

ABSTRACT:

A disc with a temporary defect management information area and a defect management area includes a defect management area that is present in at least one of a lead-in area, a lead-out area, and an outer area, a temporary defect information area which is formed in the data area and in which temporary defect information is recorded, and a temporary defect management information area which is present in at least one of the lead-in area, and the lead-out area. Accordingly, it is possible to record user data in a recordable disc, especially, a write-once disc, while performing defect management thereon, thereby enabling efficient use of a defect management area having a limited recording capacity.

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L8: Entry 8 of 8

File: DWPI

Aug 21, 2005

DERWENT-ACC-NO: 2004-348242

DERWENT-WEEK: 200669

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TITLE: Disk e.g. recordable compact disk, has lead-in and lead-out areas comprising temporary defect management area for storing temporary defect information and management information regarding user data

INVENTOR: HWANG, S ; KO, J ; LEE, K ; KO, J W ; HWANG, S H ; LEE, G G

PATENT-ASSIGNEE:

ASSIGNEE

CODE

SAMSUNG ELECTRONICS CO LTD

SMSU

PRIORITY-DATA: 2002KR-0061897 (October 10, 2002)

[Search Selected](#)[Search ALL](#)[Clear](#)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<input type="checkbox"/> TW 238387 B1	August 21, 2005		000	G11B027/00
<input type="checkbox"/> WO 2004034396 A1	April 22, 2004	E	050	G11B020/18
<input type="checkbox"/> US 20040125717 A1	July 1, 2004		000	G11B007/00
<input type="checkbox"/> KR 2004032674 A	April 17, 2004		000	G11B020/18
<input type="checkbox"/> AU 2003264963 A1	May 4, 2004		000	G11B020/18
<input type="checkbox"/> US 20050135209 A1	June 23, 2005		000	G11B005/09
<input type="checkbox"/> EP 1550125 A1	July 6, 2005	E	000	G11B020/18
<input type="checkbox"/> BR 200314659 A	August 2, 2005		000	G11B020/18
<input type="checkbox"/> TW 200406001 A	April 16, 2004		000	G11B027/00
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<input type="checkbox"/> JP 2006502520 W	January 19, 2006		031	G11B020/12
<input type="checkbox"/> CN 1689100 A	October 26, 2005		000	G11B020/18
<input type="checkbox"/> MX 2005003624 A1	July 1, 2005		000	G11B020/18
<input type="checkbox"/> US 20060203636 A1	September 14, 2006		000	G11B020/10
<input type="checkbox"/> US 20060203685 A1	September 14, 2006		000	G11B007/00

DESIGNATED-STATES: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM
DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KZ LC LK LR LS LT LU LV MA
MD MG MK MN MW MX MZ NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ
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APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
TW 238387B1	September 24, 2003	2003TW-0126299	
WO2004034396A1	September 23, 2003	2003WO-KR01938	
US20040125717A1	September 17, 2003	2003US-0663981	
KR2004032674A	October 10, 2002	2002KR-0061897	
AU2003264963A1	September 23, 2003	2003AU-0264963	
AU2003264963A1		WO2004034396	Based on
US20050135209A1	September 17, 2003	2003US-0663981	Cont of
US20050135209A1	February 1, 2005	2005US-0046882	
EP 1550125A1	September 23, 2003	2003EP-0807997	
EP 1550125A1	September 23, 2003	2003WO-KR01938	
EP 1550125A1		WO2004034396	Based on
BR 200314659A	September 23, 2003	2003BR-0014659	
BR 200314659A	September 23, 2003	2003WO-KR01938	
BR 200314659A		WO2004034396	Based on
TW 200406001A	September 24, 2003	2003TW-0126299	
IN 200500242P3	September 23, 2003	2003WO-KR01938	
IN 200500242P3	March 31, 2005	2005IN-MN00242	
JP2006502520W	September 23, 2003	2003WO-KR01938	
JP2006502520W	September 23, 2003	2004JP-0542895	
JP2006502520W		WO2004034396	Based on
CN 1689100A	September 23, 2003	2003CN-0824066	
MX2005003624A1	September 23, 2003	2003WO-KR01938	
MX2005003624A1	April 5, 2005	2005MX-0003624	
MX2005003624A1		WO2004034396	Based on
US20060203636A1	September 17, 2003	2003US-0663981	Cont of
US20060203636A1	May 10, 2006	2006US-0430906	
US20060203685A1	September 17, 2003	2003US-0663981	Cont of
US20060203685A1	February 1, 2005	2005US-0046882	Cont of
US20060203685A1	May 10, 2006	2006US-0430972	

A1 , US 20060203685 A1 INT-CL (IPC): G11B 5/09; G11B 7/00; G11B 20/10; G11B 20/12; G11B 20/18; G11B 27/00

ABSTRACTED-PUB-NO: WO2004034396A

BASIC-ABSTRACT:

NOVELTY - The disk has at least one of lead-in area and lead-out area formed adjacent to data area, having temporary defect management area (TDMA). The TDMA stores temporary defect information and temporary defect management information regarding the user data, recorded on the data area. The TDMA is accessible by recording and reproducing apparatus to perform defect management in the disk tool.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

- (1) disk defect management method;
- (2) recording and/or reproducing apparatus;

- (3) storage medium usable with recording and reproducing apparatus; and
- (4) computer-readable medium storing data recording and reproducing program.

USE - E.g. recordable compact disk (CD-R), recordable digital versatile disk (DVD-R), blue-ray disk and advanced optical disk (AOD) for recording and/or reproducing apparatus (claimed).

ADVANTAGE - The recording operation is not interrupted even when defect is detected during the reading operation.

DESCRIPTION OF DRAWING(S) - The figure shows a data structure of disk.

disk 100

CHOSEN-DRAWING: Dwg.3/9

TITLE-TERMS: DISC RECORD COMPACT DISC LEAD LEAD AREA COMPRISE TEMPORARY DEFECT MANAGEMENT AREA STORAGE TEMPORARY DEFECT INFORMATION MANAGEMENT INFORMATION USER DATA

DERWENT-CLASS: T01 T03

EPI-CODES: T01-F05E; T01-S03; T03-B06; T03-N01; T03-P01A;

SECONDARY-ACC-NO:

Non-CPI Secondary Accession Numbers: N2004-278642

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L8: Entry 6 of 8

File: DWPI

Sep 4, 2004

DERWENT-ACC-NO: 2005-062756

DERWENT-WEEK: 200507

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TITLE: Defect management method using temporary defect management area where write protect information is recorded, device and disk thereof

INVENTOR: HWANG, S H ; KO, J W ; LEE, G G

PATENT-ASSIGNEE:

ASSIGNEE

CODE

SAMSUNG ELECTRONICS CO LTD

SMSU

PRIORITY-DATA: 2003KR-0012869 (February 28, 2003)

Search Selected

Search ALL

Clear

PATENT-FAMILY:

PUB-NO

PUB-DATE

LANGUAGE

PAGES

MAIN-IPC

☐ KR 2004077345 A September 4, 2004 001 G11B007/007

APPLICATION-DATA:

PUB-NO

APPL-DATE

APPL-NO

DESCRIPTOR

KR2004077345A

February 28, 2003

2003KR-0012869

INT-CL (IPC): G11B 7/007

ABSTRACTED-PUB-NO: KR2004077345A

BASIC-ABSTRACT:

NOVELTY - A disk with a defect management method using a TDMA(Temporary Defect Management Area) is provided to accumulatively record defect information, and to read temporary defect information only which is recorded in a final temporary defect information area, while performing a finalizing process, thereby effectively using a DMA.

DETAILED DESCRIPTION - A DMA is disposed in at least one of a lead-in area and a lead-out area. A temporary DMA is disposed in at least one of the lead-in area and the lead-out area. The temporary DMA is used for recording temporary defect information repeatedly recorded by corresponding to a recording operation, and for recording temporary defect management information. In the DMA, temporary defect information finally recorded in the temporary DMA while finalizing and temporary defect management information are recorded as defect information and defect management information, respectively. Write protect information is further recorded in the DMA.

CHOSEN-DRAWING: Dwg.1/10

TITLE-TERMS: DEFECT MANAGEMENT METHOD TEMPORARY DEFECT MANAGEMENT AREA WRITING PROTECT INFORMATION RECORD DEVICE DISC

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
19 February 2004 (19.02.2004)

PCT

(10) International Publication Number
WO 2004/015708 A1

(51) International Patent Classification⁷: **G11B 20/18**

(21) International Application Number:
PCT/KR2003/001610

(22) International Filing Date: 11 August 2003 (11.08.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10-2002-0047513 12 August 2002 (12.08.2002) KR
10-2002-0047514 12 August 2002 (12.08.2002) KR

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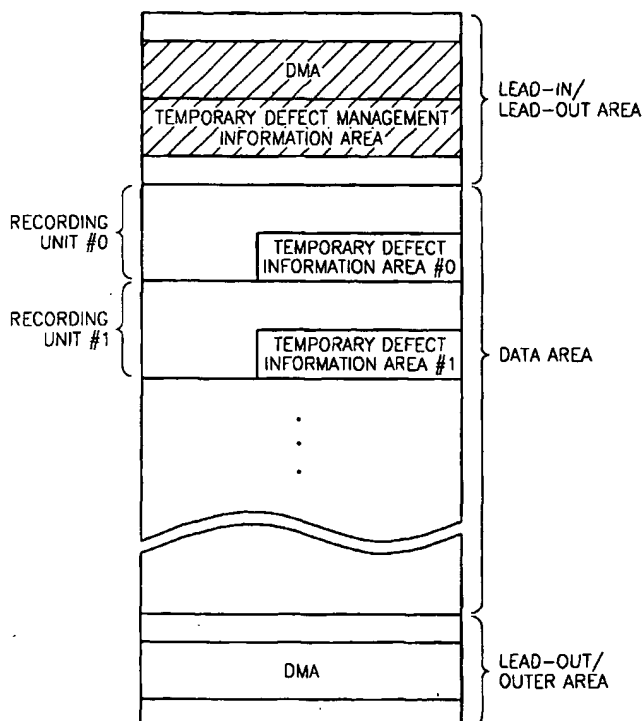
(74) Agent: **LEE, Young-Pil**; The Cheonghwa Building,
1571-18 Seocho-dong, Seocho-gu, Seoul 137-874 (KR).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SI, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW); Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM); European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,

[Continued on next page]

(54) Title: DISC WITH TEMPORARY DISC DEFINITION STRUCTURE (TDDS) AND TEMPORARY DEFECT LIST (TDFL), AND METHOD OF AND APPARATUS FOR MANAGING DEFECT IN THE SAME



(57) Abstract: A disc with a temporary defect management information area and a defect management area includes a defect management area that is present in at least one of a lead-in area, a lead-out area, and an outer area, a temporary defect information area which is formed in the data area and in which temporary defect information is recorded, and a temporary defect management information area which is present in at least one of the lead-in area, and the lead-out area. Accordingly, it is possible to record user data in a recordable disc, especially, a write-once disc, while performing defect management thereon, thereby enabling efficient use of a defect management area having a limited recording capacity.

WO 2004/015708 A1

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



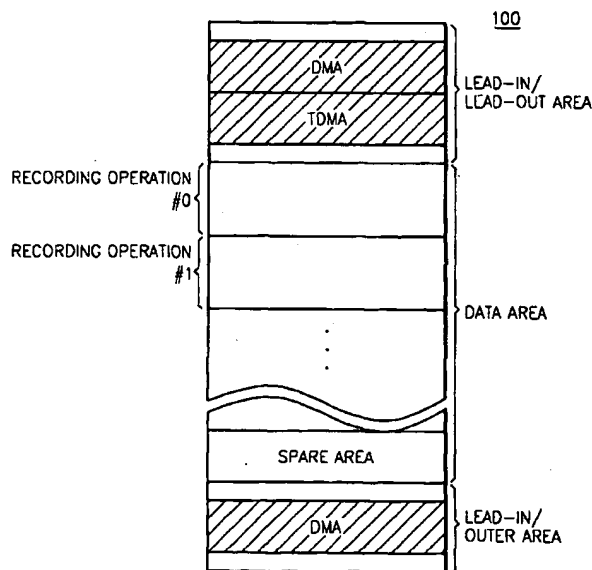
(43) International Publication Date
22 April 2004 (22.04.2004)

PCT

(10) International Publication Number
WO 2004/034396 A1

- (51) International Patent Classification⁷: **G11B 20/18**
- (21) International Application Number:
PCT/KR2003/001938
- (22) International Filing Date:
23 September 2003 (23.09.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
10-2002-0061897 10 October 2002 (10.10.2002) KR
- (71) Applicant: **SAMSUNG ELECTRONICS CO., LTD.**
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- (72) Inventors: **KO, Jung-Wan**; 315-401 Daewoo Apt.,
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463-050 (KR). **HWANG, Sung-Hee**; 420-403 Jugong
Apt., 189, Gaepo-dong, Gangnam-gu, Seoul 135-240
(KR).
- (74) Agent: **LEE, Young-Pil**; The Cheonghwa Building,
1571-18 Seocho-dong, Seocho-gu, Seoul 137-874 (KR).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE,
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LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
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SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA,
UG, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
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(54) Title: METHOD OF AND APPARATUS FOR MANAGING DISC DEFECTS IN DISC, AND DISC ON WHICH DEFECTS ARE MANAGED



(57) Abstract: A method of and apparatus for managing disc defects in a disc using a temporary defect management area in the disc, and the disc, where the method includes recording in a data area user data; and recording in a temporary defect management area, which is present in at least one of a lead-in area and a lead-out area, which temporary defect information and temporary defect management information regarding the user data recorded in the data area are recorded. Accordingly, the method and apparatus are applicable to recordable discs and capable of effectively using the defect management area.

WO 2004/034396 A1

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File: USPT

Jun 22, 2004

DOCUMENT-IDENTIFIER: US 6754860 B2

TITLE: Method for creating defect management information in an recording medium, and apparatus and medium based on said method

Brief Summary Text (9):

Defect management information, or physical address of defective sectors within the data area are stored in DMA (defective management area), which is provided in four places, two in lead-in area and the other two in lead-out area, as shown in FIG. 1, to protect against the defects which may arise in the four DMA themselves.

Brief Summary Text (32):

The apparatus for creating defect management information according to the present invention further comprises a means for obtaining addresses of the area in which data to be erased is recorded; a means for reviewing the storing means keeping the location information, or addresses of audio/video data's detective areas and determining whether or not there is any defective area, address of which is matched with the obtained addresses; and a means for moving the matched addresses between the areas for defect information.

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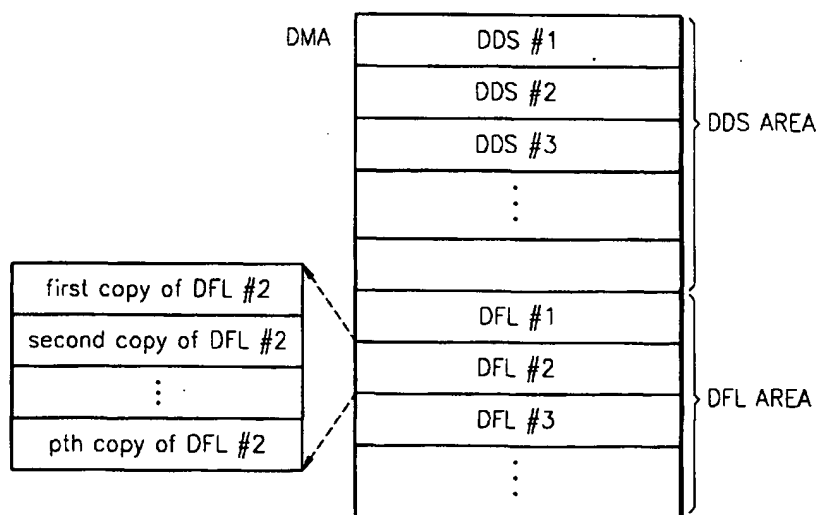
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[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR MANAGING DISC DEFECTS USING UPDATEABLE DMA, AND DISC THEREOF



(57) Abstract: Provided are a disc defect management method and apparatus using a defect management area that can be updated, and a write once disc. The write once disc is a single record layer disc in which a lead-in area, a data area, and a lead-out area are sequentially disposed, the disc comprising a defect management area (DMA) that is present at least once in the lead-in area and the lead-out area, wherein defect information and defect management information are repeatedly recorded in the DMA according to a recording operation. Accordingly, the disc defect management method and apparatus are applicable to write once discs and are capable of effectively using the defect management area.

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(12) **United States Patent**
Park et al.

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(54) **WRITE-ONCE OPTICAL DISC, AND
 METHOD AND APPARATUS FOR
 RECORDING MANAGEMENT
 INFORMATION ON WRITE-ONCE OPTICAL
 DISC**

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(57) ABSTRACT

A writable-once optical recording medium such as a BD-WO, and a method and apparatus for managing the writable-once optical recording medium, are provided. The recording medium includes at least one recording layer having at least one temporary defect management area and at least one final defect management area. The method includes recording temporary defect management information in the temporary defect management area of the recording medium, the temporary defect management information including disc usage management information indicating a recording use status of the recording medium; and transferring, at a transfer stage, the temporary defect management information from the temporary defect management area to the final defect management area of the recording medium.

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(73) **Assignee:** **LG Electronics Inc.**, Seoul (KR)

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G06F 11/00 (2006.01)

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(56) **References Cited**

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42 Claims, 12 Drawing Sheets

